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Accounts for the Manufacture of Wood Veneer

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The product of woodworking industries is of wide variety and frequently the particular product manufactured requires specially planned accounts to meet the peculiarities of the business. The subject of veneer manufacturing is an instance illustrating special requirements.

The product of the industry consists either of single pieces of veneer a fractional part of an inch in thickness or pieces glued together in such a way that they form panels of two or three layers of veneer. The number of layers forming a panel is indicated by the terms two-ply, three-ply, etc. In manufacturing the two-ply panels, one of the two pieces of veneer used is called the face and the other the back. In the case of three-ply panels the pieces are called the face, the center and the back. Ordinarily the quality of wood used for the faces is better than for either the backs or centers. Many pieces of veneer break with the grain of the wood in the drying process and these broken pieces are sorted and fitted together so that they form centers when bound with adhesive paper tape.

The product is sold by the piece and the prices per piece range upward according to the square measure, thickness of stock, number of ply and variety of wood in each piece. In order to fix prices for competitive quotations it can be readily understood that some method for obtaining the cost of manufacturing pieces of veneer of varying measurements and quality is essential. A description of such a method and the manner of weaving it into the general accounting will form the principal part of this discussion of the subject matter.

The accounts in the general ledger should include those usual to a manufacturing system of accounts. Accounts should also be kept representing in-process, stock in stores, sales, cost of sales and overhead.

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Before taking up the details of collecting cost data it may be well to present a brief description of the material and operations entering into the manufacture of veneer.

Material used consists principally of logs. The logs are sometimes acquired by purchase in the market or they may be cut from the company's own timberland. The logs are yarded in the mill yard and brought into the mill as they are needed for work orders. Glue, sandpaper and tape are other materials used.

Not many operations are necessary in manufacturing veneer. The logs are brought into the mill, sawed into bolts, the bark removed and the bolts placed in a steam vat for steaming. After the process of steaming is completed the bolts are taken out of the vat and placed in a veneer machine which turns off long strips of veneer of whatever thickness is desired. The strips of veneer are then cut into square or oblong pieces by a cutting machine. Drying is the next process. When the pieces of veneer are taken from the dryer they are placed on trucks and either carried to the stock room or sent directly to the gluer for making into ply stock. Pressing, sanding, sizing, taping and crating are the only other important operations which need be mentioned.

For cost accounting purposes a work-order number should be given each lot of veneer or panels to be manufactured. The work-order sheet should be in duplicate, one copy for the superintendent and one for the office. If veneer stock is manufactured in anticipation of prospective demand, authorization numbers should be used and entered on work orders to designate an aggregation of product that, it has been determined, it is desirable to manufacture. The work orders with appropriate numbers and descriptions should be retained in the office and superintendent's files awaiting the time when the superintendent wishes to start work.

Time and material tickets should be used as a medium for collecting cost information in the mill. For the purpose of illustrating as clearly as possible the use of these tickets as they pass through the mill let us assume a work order issued for the manufacture of 100 pieces of oak veneer of specified thickness and other measurements. Since the logs require steaming before they are ready for the veneer machine there will be two sets of tickets used before completion of the order. The first set will be used

in bringing the logs into the mill, scaling, sawing, barking and steaming. The second set will be used in taking the logs from the steam vat, turning off strips of veneer, cutting the strips into lengths, running them through the dryer, sorting on the trucks, taking the count and transferring to the stock room.

When work is started on the order the superintendent takes a time and material ticket, enters thereon the work order number, the workman's name or number and the operation, with the date. In columns or spaces provided on the ticket the workmen will enter the time started and stopped and the number or class of machine used, if a machine is used. If more than one machine is used by a workman, the time started and stopped should be entered for each machine.

The only material used which will enter into the product under the first set of tickets will be logs. In order to account for this material a tally sheet should be provided and the number of feet in each log that is brought in for the work order should be entered thereon. Of course, this will necessitate scaling each log as it enters the mill. The information shown on this tally sheet is to be transferred in total to the time and material ticket of the workman who saws the logs, entering it in space provided for withdrawn from stores.

Under the second set of tickets the man and machine hours should be accounted for in the same manner as under the first set. The man in charge of the dryer or his assistant should be provided with a production card. As the veneer is taken from the dryer and piled on trucks the defective and broken pieces should be sorted out and record should be made on the production card showing the number of pieces finished, both perfect and defective. When the work order is completed the total number of pieces finished as shown by this production card is to be transferred to the time and material ticket of the workman in charge of the dryer, entering the information in space provided for "pieces finished" or "pieces defective." It probably would be advisable to have the log tally and production sheets turned in to the superintendent for transferring totals to tickets rather than to depend upon the workmen. The time and material tickets are turned in to the superintendent daily.

The superintendent, having entered the information from the tickets on his copy of the work order, turns them over to the bookkeeper, who enters the man rate per hour at the head of the ticket, man rate including overhead in the man-rate column, machine rate in the machine-rate column, the total cost per hour in the rate column and prices of material withdrawn from stores in the space provided therefor. The total cost amount of labor and material is then computed and carried out for entry on the office copy of the work order.

The bookkeeper should enter on the stores card the record of units of material withdrawn. This stores card, of course, furnishes information as to the cost price to be entered on the ticket. Having made the stores card record the bookkeeper should refer to the office copy of the correspondingly numbered work order and enter thereon the date started, total labor cost and material cost.

In order to obtain a general summary of the time and material tickets, from which debits and credits to the general ledger may be recorded, a distribution record should be provided. This record may be called "time and material distribution record." Headings of columns in this record should be date, ticket number, work-order number, in-process amount, "A" expense, "B" expense, "C" expense, "D" expense, sundries, stores and material, man hours cost, amount man overhead, machine overhead, man number or name and time.

In further explanation of the time and material distribution record, the ticket number column is to contain a complete series of numbers for each day's tickets, commencing with No. 1. The in-process amount column is to contain the total cost of time and material shown by the ticket chargeable to a work order. The total of this column at the end of each month should be posted to the debit of in-process account in the general ledger. The columns headed "A," "B," "C" and "D" should contain the total cost which is chargeable to one or more of the expenses represented by those letters and monthly totals of the columns should be posted to the debits of their accounts in the general ledger. The sundries column should contain the total cost of any ticket chargeable to such accounts as new machinery, tools and building improvements. All items in this column should be posted at the end

of each month to the debit of the accounts designated. The stores column should contain the total cost of material drawn from stores as shown by the tickets; and at the end of the month the total of the column should be posted to the credit of stores account in the general ledger. In the man-overhead column should be entered the amount of the man overhead computed according to the cost on the ticket. For example, assume the man-overhead rate per hour to be 20 cents and the time worked three and one-half hours—the man overhead shown on the ticket would be three and one-half times 20 cents. At the end of a month the total of this column should be credited to overhead account in the general ledger. In the column headed machine overhead should be entered the machine overhead amount computed according to cost on the ticket, and the total of the column should be posted each month to the credit of overhead. In the columns headed "man number or name" the total hours each day that a man has worked should be shown, furnishing the information for entering time in the payroll book.

It has already been shown how the labor and material information accumulates from the tickets. When the superintendent reports the order completed the material and labor costs which have been entered on the office copy of the work order should be added together and divided by the total pieces finished, to show the aggregate cost and per piece cost to be entered on the stores card, properly headed. When the cost is entered on the stores card the word "entered" should be written on the work order and the work order should be filed in its proper series location in a cabinet.

The totals of all in-process cards thus closed into stores should be footed each month and the total posted to the debit of stores account and to the credit of in-process account. It is thus evident that all active work orders representing the stock in process will be combined in the office and that the totals of cost values on these cards in aggregate should correspond with the amount shown by the in-process account in the general ledger.

In fixing the per hour overhead cost charge to manufacturing, estimates are necessary when first starting the system. To illustrate the method of obtaining these estimated figures assume the following:

Overhead expense, including indirect labor for 1 year,.....	$40,000
Sales, 1 year.....	360,000

Number of workmen necessary to produce $360,000 sales value of finished product in a year..... 50 men
Number of eight hour days necessary to work..... 250

Multiplying the number of days by the hours per day and again multiplying by the number of men working result in 100,000 direct hours. Estimating one-half the burden to be machine overhead and that machines are in operation one-half the time, the resulting rates would be 20 cents per hour man rate and 40 cents per hour machine rate. The machine rate should be distributed over the different classes of machines. For example, class A machines may require a rate of 15 cents and class B machines a rate of 25 cents, depending upon the size of the machine, constancy of use, investment, etc. At the end of the first month's operation, or as soon as definite figures can be obtained, adjustment of these man and machine overhead rates should be commenced in order that they may be brought as nearly as possible into accord with actual results instead of estimates. By the end of a year the rates should be established so that they will very nearly absorb the overhead charges. Of course, if the factory operates under minimum production capacity, it will be necessary to make allowance for this in fixing rates. Under such conditions part of the overhead would be chargeable to under-capacity loss and should not be carried into cost of the product.

Besides finished and in-process merchandise stock, the stores cards should show the amount on hand and cost value of all articles and material used in the factory. When invoices are received and approved the merchandise represented therein should be entered on the stores cards in the manner indicated by the card headings. Withdrawal of stock has already been explained.

The stores cards should be frequently proved by counting the material in stock. There will always be discrepancies of more or less amount between the actual amount of stores and the amount shown on the cards. These differences should be immediately rectified by changing the card figures after carefully rechecking the count.

At the close of any period the amount by which the stores cards' aggregate balance total disagrees with the general ledger stores amount should be adjusted by crediting or debiting stores and contra debiting or crediting adjustment account.

Sales should be recorded by means of the duplicate bill system. Upon the duplicates the bookkeeper enters the cost values of all items and totals them. The duplicates are then entered in the sales register. In the sales register the total amount of the bill as charged to the customer is entered in the sales column. The total cost is entered in the cost-of-sales column. The total of all material or merchandise that was withdrawn from stores is entered in the stores column. Any articles that come from other sources, such as machinery and tools, should be entered in the sundries column, and the account, such as machinery and tools, should be indicated.

The monthly total of the sales column should be entered to the debit of accounts receivable and to the credit of sales account in the general ledger. The monthly total of cost-of-sales column should be entered to the debit of cost-of-sales account in the general ledger. The monthly total of stores column should be entered to the credit of stores account in the general ledger. All items in the sundries column should be entered to the credit of the various accounts indicated.

In a complete discussion of accounts and costs for the manufacture of wood veneer there would be many details which have not been mentioned in this paper, but it is believed that the important features have been sufficiently explained to enable any minor problems that might arise to be worked out with comparative ease. The cost data brought together would be invaluable in fixing prices, and the summarized figures in the monthly statements from the general ledger containing such information as cost of sales, overhead, under-capacity loss, etc, would afford an interesting and profitable study for the manufacturer who is endeavoring to learn how to direct the course of his business and prevent waste.